

SCIENCE.—SUPPLEMENT.

FRIDAY, JUNE 4, 1886.

AN INDIAN SNAKE-DANCE.¹

THE worship of the serpent has been so closely connected with the mythologic systems of so many primitive peoples, and has exercised so large an influence on religion, that any facts bearing on the subject must be of interest. It has even been said that this form of worship was more widely and universally distributed than any other. In Egypt, at the dawn of history, serpent-worship had already assumed the highest importance. Among the Phoenicians and in ancient Persia the serpent was worshipped as an evil deity, and also at a later period among the German tribes of the north; and the same myth may be traced in a modified form in the legendary history of the Greeks and Romans. Among the Hebrews there existed a strong tendency to this form of worship, — a tendency which, though repeatedly crushed out by the hand of power, as often re-asserted itself; and so late as eight hundred years after Moses it was prevalent in one of its grossest forms, for we read in 2 Kings xviii. 4, "He removed the high places, and brake the images, and cut down the groves, and brake in pieces the brazen serpent that Moses had made: for unto those days the children of Israel did burn incense to it." With the Chinese the serpent is a "symbolic monster, dwelling in spring above the clouds to give rain, and in autumn under the waters." It is in this connection, i.e., in connection with rain, that the performance that I am about to describe, occurred. In India the serpent was regarded as the great evil spirit, and Krishna is represented as crushing its head beneath his heel.

To come nearer home, the myth was very widely distributed among the North American tribes at the time of the discovery, in many of them in the form of pure ancestor-worship, but in others not so connected. It was common among the mound-builders, as is shown by the number of mounds of the serpent-form still existing, and by the prevalence, in mound relics, of more or less conventionalized representations of the rattlesnake. A recent report of the bureau of ethnology contains illustrations of a number of shell-gorgets, described and figured by Mr. W. H. Holmes, which are engraved to represent snakes.

Nowhere, I think, was the influence of this

myth more pronounced than in ancient Mexico; and nowhere, I may add, is it more involved or its meaning more obscure. As the tendency of modern investigation is to show the existence of a remarkable similarity between the ancient Mexican civilization and the pueblo system of our own south-western territories, any facts in regard to serpent-worship among the latter must be of especial interest.

During the early part of the past field-season we were engaged in the investigation of some ruins near the Moki Pueblos, and were so fortunate as to be in that neighborhood at the time of the 'snake-dance' of those Indians. We witnessed this interesting performance twice, — once at Mashongnavi, one of the middle towns of the Moki confederacy, on the 16th of August; and again on the next day at Wolpi, one of the eastern towns. The two dances are essentially the same, the only difference being in the greater number of performers at Wolpi, and in the painting of the body. I have selected the Mashongnavi dance for description, because it has never been described, and had never, to my knowledge, been seen by whites before our visit; while that of Wolpi has been witnessed by many interested persons, several of whom have published, or are about to publish, their accounts.

During several days, before the date fixed for the dance, we frequently met parties of Indians hunting for snakes. The men were perfectly naked, with the exception of the breech-cloth, and each one carried a long red buckskin bag to contain the reptiles, and a feather wand, described later on. As the dance occurs in August, when the temperature during the middle of the day is almost unbearable to a white man, the airy costume of the hunters is a decided advantage to them. Several hunters carried forked sticks.

The snake-hunting occupies four days, one day being devoted to each of the cardinal points of the compass. There is said to be also a supplementary search on the last day, in order to capture any snakes that may have been overlooked previously. About noon of each day groups of hunters visited the several springs lying in that day's section, in order to bathe and rest themselves, and to deposit in crevices in the rocky wall of the spring or reservoir a *baho*, or prayer-stick, — a small round piece of wood half an inch or less in diameter and three or four inches long, generally painted in green and white, and with a feather from the

¹ Read before the Washington anthropological society.

breast of an eagle attached to it. These *bahos* are prayers to the gods that the springs where they are deposited may not dry up, but continue to give an ever-increasing supply. We never saw the ceremony of depositing *bahos*, if ceremony there be, though on several occasions we reached the spring while the hunters were there.

At the end of each day the serpents collected during that day were deposited in an *estufa* situated on the southern edge of the village, the westernmost of a group of three. These *estufas*, or, as the Indians call them, *kivas*, were underground, or partly underground, chambers, a number of which are attached to each village, and form a kind of combined church and court-house, in which is transacted all the religious and civil business of the tribe. They are of various dimensions. Those mentioned here are about twenty-five feet long by twelve in width, and nine feet high. Most of these *kivas* have a slightly elevated *dias*, or platform, occupying a little less than one-half of the ground space, generally the south end. On this platform the women and other spectators stand during the performance of those rites which they are allowed to witness. There were a number of young men who seemed to make this their headquarters during the period of preparation, living in the *kiva* entirely, except when out on a hunt. They usually sallied out during the forenoon, armed with the various paraphernalia before mentioned, and returned to supper or feasting a little before sundown. At one of our visits, on the day before the dance, we found the floor of the *kiva* strewn with buckskin sacks, some empty, others containing snakes; but the bulk of the snake-supply was contained in three large earthenware vessels inverted on a slight bed of sand on the floor. Each vessel had a small hole broken through the bottom, through which the reptile could be passed. These holes were closed by corn-cob stoppers. During the visit, a man brought in another pouch, and released on the floor two small rattlesnakes. The younger men of the band played with these, apparently from simple amusement or curiosity, as there was no ceremonial whatever. They handled the snakes without taking any special precautions to get a safe grip, even holding them occasionally by the middle of the body. After a while they were put into the jars with the others. While one of the snakes was coiled on the floor for a movement, a naked boy walked past it to the other side of the room, passing within six inches of the snake.

The easternmost of the three *kivas* is the snake-*kiva* proper. In this underground chamber, for several days preceding the dance, various rites and ceremonies were performed. On the lower

portion of the floor was a peculiar altar, made of various colored sands spread on the floor, and surrounded by lumps of clay in which were stuck small upright sticks with feathers attached. This sand-painting on the floor represented a mass of clouds from which descended four variously colored figures representing either snakes or lightning, the sign for these being apparently the same. Both the clouds and the other figures were very much conventionalized. The colors used were yellow, blue, pink, black, and white. It is unnecessary here to describe the details of this so-called altar or its construction, as the type is already well known through the able descriptions of Dr. Matthews and Col. James Stevenson. I do not think the snakes appear in this *estufa* until immediately before the dance.

We reached the village of Mashongnavi shortly after four o'clock in the afternoon of the appointed day, and found that preparations had been made to hold the dance in the middle court, — an oblong space measuring about a hundred and fifty feet by thirty or thirty-five, and closed all around by houses, with the exception of the narrow passage-ways at the south end nearest the *kivas*, and a large passage on the north, which, however, was not used in this ceremony. Only a part of the available space of the court was utilized. The court had been swept clean; and near the middle, close up to the houses, on the western side, a small conical hut constructed of green cottonwood boughs had been erected. The diameter of the hut, on the ground, was about six feet; and the tops of the highest branches measured about thirteen feet from the ground, though the inside height was probably under five feet. On the east side, flush with the ground, was an opening about two feet and a half square, covered with a piece of buffalo-hide, smooth side out. A little before five o'clock three men dressed in the snake costume came through the narrow opening at the south end on a run. Each carried in his hand a small red buckskin bag containing sacred meal. They entered the hut one at a time, remaining inside a moment. Immediately after these men came two others, dressed also in the snake costume, carrying between them a medium-sized flour-sack nearly full of snakes. These were deposited in the hut, and the whole party returned through the passage by which they had entered. A moment later the procession of dancers filed into the court.

There were two costumes, — that of the antelope gens, under whose auspices the dance was performed; and that of the snake order, the performers. The legend of this dance is the legend of the first arrival of the Mokis at their present

habitat. The antelope gens were the first to arrive, and were guided to their present location by the snake-woman. * The snake order was instituted to commemorate this event.

The costume of the antelopes was much more brilliant than that of the snake-men. Each of the former carried in his hand a small, round, T-shaped rattle painted in white and green, the top and edges being white. The fore-arm was covered with white cloth. Around the waist was a sash of cotton embroidered in red and green in geometrical patterns; and hanging down halfway to the knee was a kilt, embroidered in the same style, and, like the sash, woven of cotton. Each performer, both the antelopes and snakes, wore two or more strings of shell beads around his neck, and, suspended from them, a brilliant haliothis shell. When the performer did not possess such a shell, he wore in its place a small circular mirror, such as is furnished by the traders. The breasts and upper arms were decorated in pinkish-white clay, with the conventional snake design,—a zigzag line. Suspended from the back of the sash hung a coyote-skin, the tail of which just reached the ground. The legs, from the knee down, were painted with the clay before mentioned. They wore anklets of red and green worsted on the ankles; and the feet, in some cases were bare, and painted with clay, in others were shod in ordinary moccasins. There seemed to be no rule for the antelope-men. The faces of all the performers were painted black, from the line of the mouth down. Both parties wore a small bunch of red feathers in the hair.

The snake-men wore the same kind of beads and shells as the others. The painting of the body differed somewhat: instead of the zigzag line, they had triangular-shaped blotches of pinkish clay on each breast, and on the upper arms near the shoulders. On the upper arm also, on both sides, they wore bracelets of bark, painted white. The fore-arm was painted with clay. The kilt was of the same style as that worn by the others, but of a red color. Running around it horizontally was a conventionalized drawing of a snake in black and white. At the knee they wore the regular garter in use by all the Indians of this region; and attached to the right leg, just below the knee, was a rattle, formed of a tortoise-shell with attached sheep or antelope hoofs, which made a most dismal clanking sound whenever the wearer moved his leg. The leg, from the knee down, was painted with clay; and the feet were shod in moccasins of red buckskin, with an attached fringe at the top, all looking very new and bright. These performers also wore the wolf-skin.

The leader of the dance, or high priest, carried

a buzzing-stick, which failed to work properly, however, and was soon discarded.

The antelope-men, some ten in number, came in first. They entered in single file, and marched around four times in an irregular circle, approaching the hut from the north. They then took up their positions on either side of the hut, facing out. The snake-men, about fifteen in number, then entered the court, marching in the same direction as the others had. As they passed the hut, they scattered some sacred meal, and stamped on a concealed board in front of the door. This board is buried in the ground, immediately in front of the door of the hut, and a hollow scooped out under the middle of it. Each performer, as he passes, scatters some sacred meal (which is a form of prayer), and stamps on this board, producing a loud, hollow sound. The object is to call the attention of the gods to the zeal of the performer, that he may be properly rewarded. By another version, if a dancer succeeds in breaking this board, which is nearly two inches thick, any wish that he may make for two succeeding years will be granted. As the same board is used continuously until it wears out, it must be occasionally broken. It is possible, however, that the man who gave me this version invented it.

After this stamping had been repeated four times, the snake-men formed a line, facing the antelopes, and about six feet distant from them. The antelopes then commenced a low chant, in which the snake-men joined. Occasionally the measure was changed for a few moments, and they made a gesture with the feather wands which each man carried in his right hand. The chant was kept up without intermission during the entire dance, and was accompanied by a peculiar rhythmical swaying motion of the body. When the feather-shaking had been repeated four times, the snake-men broke their line, and grouped themselves in front of the door of the hut. A moment later the group parted, and one of the performers appeared, holding in his mouth a snake. A companion (also a snake-man) joined him, passing his left arm over the first man's shoulder; and the pair passed around on the line previously pursued, with the peculiar step which, for want of a better name, is called a dance. The companion carried in his right hand one of the feather wands before referred to, consisting of two large feathers (said to be those of the wild turkey) mounted in a short wooden handle, with a small red feather dangling from the end. This wand was constantly and very skilfully used by the companion to distract the attention of the snake held in the mouth of the other, and to keep its head forward. The man who carried the

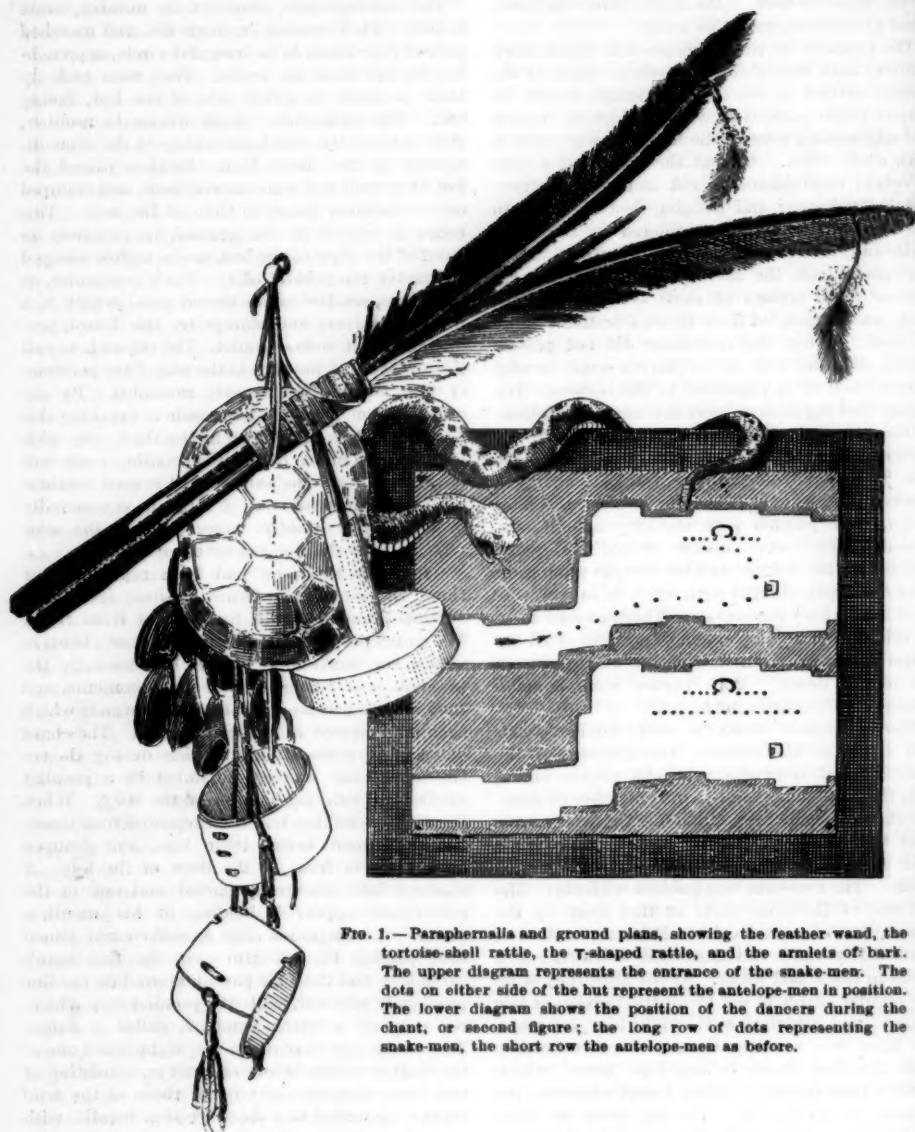


FIG. 1.—Paraphernalia and ground plans, showing the feather wand, the tortoise-shell rattle, the T-shaped rattle, and the armlets of bark. The upper diagram represents the entrance of the snake-men. The dots on either side of the hut represent the antelope-men in position. The lower diagram shows the position of the dancers during the chant, or second figure; the long row of dots representing the snake-men, the short row the antelope-men as before.

A SNAKE-DANCE AMONG THE MOKI INDIANS OF THE SOUTH-WEST.

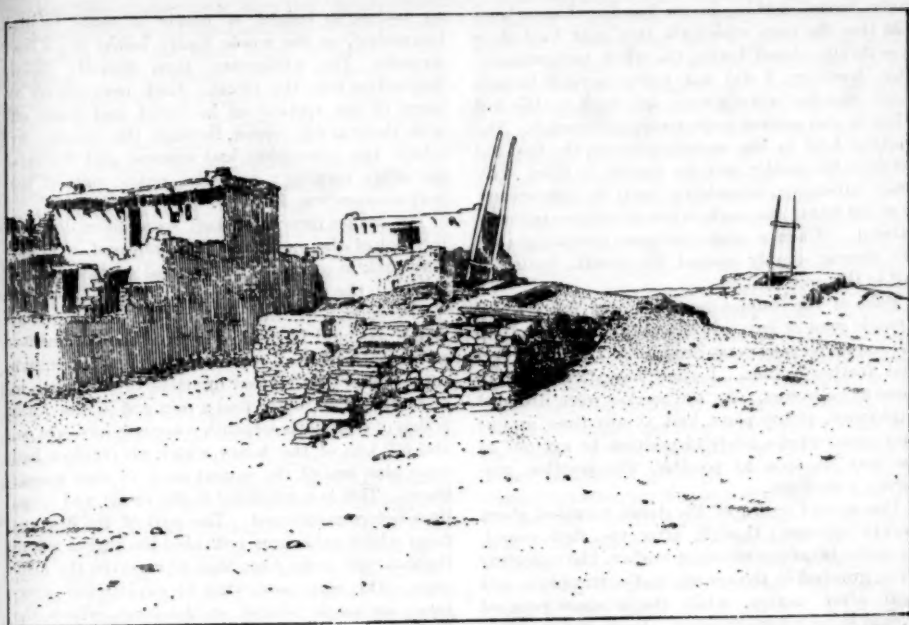


FIG. 2.—A MOKI KIVA.

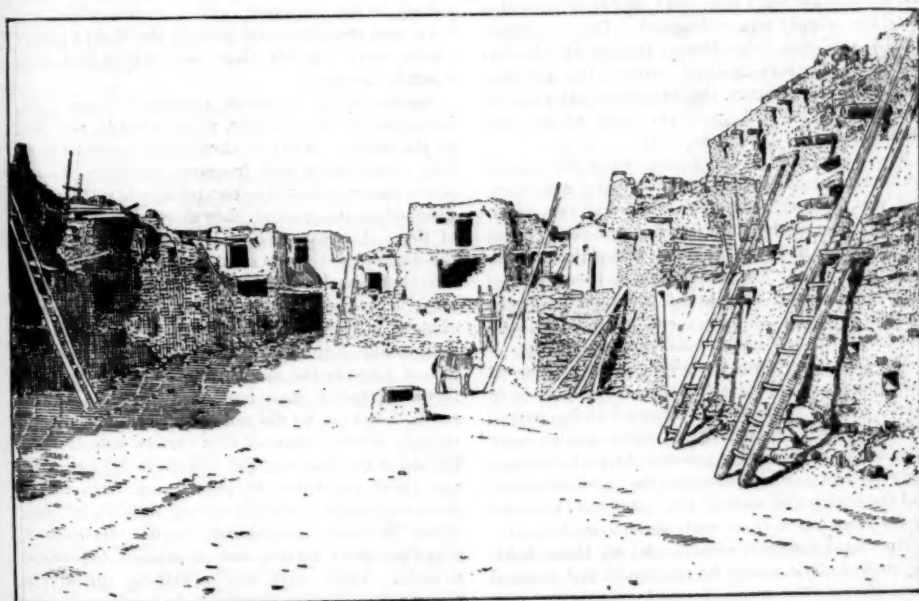


FIG. 3.—THE MIDDLE COURT OF MASHONGNAVI, LOOKING NORTH.

snake carried nothing in his hands. I have been told that the men who took this part kept their eyes tightly closed during the whole performance. This, however, I did not notice myself, though these dancers were always led back to the hut when it was desired to procure more snakes. The snake is held in the mouth between the lips, not between the teeth; and the mouth is filled with some substance, resembling meal in appearance, to avoid biting the snake when the dancer becomes excited. When a snake became unmanageable, the dancer simply opened his mouth, letting it fall to the ground.

Each of the couples described was followed by a single man or boy, whose duty it was to pick up the snakes as they were dropped. These also carried feather wands. I shall hereafter refer to these as collectors. As the snakes were dropped haphazard, at any place, and at any time, and as they manifested a lively disposition to get out of the way as soon as possible, the position was hardly a sinecure.

This second figure of the dance occupied about twenty minutes; though, after the first round, the order became somewhat broken, the collectors being grouped in the centre, and darting here and there after snakes, while the dancers pranced around in an irregular circle. Each performer, as he dropped his snake, was led back to the hut by the companion for a new one; and this continued until the supply was exhausted. The low chant of the antelopes, the dismal though rhythmical clank of the tortoise-shell rattles, the peculiar motion of the dancers, the breathless attention of the spectators, — all gave this part of the performance a weird character.

The latter part of the figure, when the snakes had accumulated in the hands of the collectors, and the dancers became excited, was very interesting. One of the collectors had a dozen or more snakes in his hands and arms. When the number became too great for proper management, part of them were turned over to the antelope-men, who remained in line on either side of the hut, and were held in their hands until the final figure.

The final figure was the most exciting. One of the performers, going a little to one side, drew in sacred meal a circle about thirteen feet in circumference. Two diameters at right angles were drawn, and another line passing obliquely through their intersection, representing the cardinal points and the zenith and nadir. The latter are expressed by the line drawn from north-west to south-east.

The chant suddenly ceased, and all those holding snakes made a rush for this circle, and dropped them into it. The snakes formed a writhing mass, nearly filling the circle longitudinally, and about

six inches in height, so nearly as could be distinguished, as the whole figure lasted but a few seconds. The snake-men then literally threw themselves into the circle. Each man seized as many of the reptiles as he could, and made off with them at full speed, through the passage by which the procession had entered, and through the other opening; and the public part of the performance was finished.

The snakes thus carried off were taken down to the foot of the mesa, and there released. On our way back to camp we met several parties returning from the performance of this duty.

The object of this part of the ceremony, as nearly as could be made out from the various descriptions which we received, was this: the snakes were released at the four quarters of the earth in order that they might find a rain-god (whose form is that of a gigantic serpent), wherever he might be, and tell him of the honor which his children had done him, and of the urgent need of rain among them. This is symbolized in the circle and cross lines before mentioned. The part of the heavens from which rain came indicated the region where the god was at the time that he received the message. This helps somewhat to explain the reverence, we might almost say fondness, which the Moki feels for the snakes. The released snakes act not only as messengers, but also as ambassadors, to the rain-god; and a snake which had been well treated would present the Moki's prayer much more forcibly than one which had been roughly handled.

Snakes of all varieties procurable were used, including the rattlesnake, about twenty per cent of the latter. Many of them were numbed from long confinement and frequent handling, though when given a chance to escape, as when they were dropped on the ground, they showed decided signs of life. A great rivalry is said to exist among the dancers as to who shall handle the largest and finest rattlesnakes; but, I must confess, I failed to see it. On the contrary, there seemed to be a preference for a small, thin snake, not poisonous (the whip-snake, I think). Several of the dancers held two of these in the mouth, and one man even had three. When a man happened to get a rattlesnake, however, he did not seem to mind it much; though, when a snake of this variety was dropped by one of the dancers, the collectors did not show any great eagerness to pick it up. Several of these rattlesnakes were in a very ugly mood, and, when dropped, immediately coiled themselves, sounding their rattles, and showing a disposition to fight. These were not picked up quickly, as the others, but were given a wide berth by dancers and collectors alike. One of the elder collectors,

more skilful or more rash than the others, would then approach, and tease the snake with his wand until it struck, the blow being received on the feathers. This would be repeated until the snake became frightened and attempted to escape; but, as soon as it uncoiled, the collector would seize it with a quick movement of the hand from the tail toward the head, the snake being grasped by the neck. This movement is accomplished with lightning-like rapidity. The wand is retained in the hand; and the feathers, during the operation, cover the snake's head. After the seizure, however, it seemed to make little difference how they held the snake, holding it by the middle or tail as often as by the neck. No one was bitten at this dance; though at Wolpi, the next day, one of the young performers, a boy of eight, made the rounds with a rattlesnake fastened to one of his fingers. During the final scramble I lost sight of him, and was unable to discover what course of treatment he underwent, or whether he survived or not.

One of the striking accessories of the dance, are the groups of women in holiday attire, who stand along the walls and along the margin of the dancing-space, holding in their arms large trays of sacred meal, which they scatter on the performers and on the snakes as they pass. The boy who was bitten at Wolpi was almost covered with meal by these women.

At the second dance, at Wolpi, we were on the lookout for the after-proceedings, and had an opportunity of seeing a part of them. Immediately after the dance the women were seen coming in from all directions with baskets of *peki* or paper-bread, great quantities of wheat-bread or rolls, bowls of mutton-stew, and the various eatables which formed the Indians' holiday food. The quantity seemed sufficient for an army. These were sent down into the snake-*kiva*. In the mean time other women were scurrying along with great bowls of a brownish liquid with a very disagreeable smell. I followed several of these women around to the back of the pueblo, and there saw a number of the late dancers drinking this liquid, and vomiting most violently. I afterwards learned from Weeki, the snake-priest, that this process continues for four days, — a period occupied in alternate feasting and vomiting. This is the so-called purification.¹

¹ This is the way our interpreter translated it: It should be constantly born in mind, however, that the idea of purity — of moral goodness — is one which does not make its appearance until we get well along in the scale of development, to a point much beyond the position occupied by these Indians. The savage or barbarous mind recognizes no physical cause for phenomena. Poison, as such, is an idea which is wholly inconceivable; and death from that cause, from a snake-bite for example, would be attributed to some evil influence exerted by man, as in witchcraft or by a supernatural being, or to some mistake or omission in the incantation.

This number, 4, runs through the entire performance: four days are spent in collecting the snakes, — one day for each of the cardinal points of the compass; the dancers retire then to the *kiva* for four days, fasting and praying during the day, and eating only one meal, and that one after dark; on the fourth day of this period the dance takes place, and is followed by four days of purification and prayer; each figure in the dance, except the last, is repeated four times.

A description of the Moki snake-dance which occurred at Wolpi in 1881 has been published by Capt. John G. Bourke of the army, in his book 'The Mokis of Arizona.' This description differs in many important points from mine. It is true, we describe dances at different villages; but I have already said there was no essential difference between the two performances witnessed by us: in action the two dances were identical. As Captain Bourke's account is probably a close one, the ritual of the dance must have undergone many important changes in the period which elapsed between the dance witnessed by him and the one here described. The dance is performed under the auspices of the antelope gens or the antelope order, we were unable to determine which; but the men who handled the snakes belonged to the snake order, and not to the snake gens. I think that one of the requirements is, that all those taking part in this dance shall be members, either congenital or adopted, of the antelope gens, or order, whichever it may be. The snake gens has nothing to do with the dance; and, contrary to the opinion of Captain Bourke, it is not referable, I think, to ancestor-worship, at least not directly. It is not even serpent-worship, unless the word be taken in its widest sense, — the sense which includes not only serpent-adoration and reverence, but also serpent-symbolism. It is in this sense that I have used the word. The Moki Indian loves and reveres the snakes, and will never, unless under the greatest necessity, do them harm; but he does not adore them, nor sacrifice to them as he does to his gods, but uses them simply as the most appropriate messengers to the rain-god.

The underlying ideas which have given rise to this dance are, and must remain so long as our knowledge is in its present incomplete state, unknown. From the point of view of the great majority of the Moki Indians, it is simply an invocation, — a ceremony having for its sole purpose the procuring of rain; but the fact that there is an esoteric legend, one very jealously guarded, too, seems to point to another and a deeper significance. An investigation in this direction would probably result in throwing much light, not only

on this particular ceremony, but on serpent-worship in general. The rites connected with this form of worship have always been secret,—secret even in the tribe where it is found. And while the worship of the serpent has been associated with some of the highest conceptions of the barbarous and semi-civilized minds,—with, for example, the principles of reproduction and of the immortality of the soul among the Hindoos, and with the idea of divine wisdom among the Egyptians,—and while it has been so widely distributed, in one form or another, that there is hardly a nation or tribe which does not carry traces of it in its history, but little is known about its details or origin. The performance takes place every second year at the village I have named, and is ostensibly, as I have before said, for the sole purpose of procuring rain. I have been assured by several of the old men in Moki that this dance has never failed to do this; and, in fact in the present instance, it was preceded by several months of the driest weather known in that country for years, and was succeeded, on the very day of the dance, by such copious and prolonged showers, that many of the Moki lost their crops by washouts.

KOSMOS MENDELIEFF.

THE ARTICLE 'PSYCHOLOGY' IN THE 'ENCYCLOPAEDIA BRITANNICA.'

In the eighth edition of the 'Britannica' the article on metaphysics covered seventy-four pages, and there was no article on psychology at all; in the ninth edition the article on psychology covers forty-nine pages, and that on metaphysics is reduced to twenty-three pages. This change in the apportionment of space to these two topics is a reflection of the change of base which has occurred in the study of the philosophical sciences within the last few decades. Psychology has become, or at least has plainly declared that it intends to become, strictly scientific; and metaphysics has withdrawn to a field of its own.

In an encyclopaedia article on such a topic the author has a bewildering choice of possible modes of treatment. The average reader, referring to an article on psychology, will perhaps expect a general statement of the results obtained in the different departments of psychological research, treated from a broad modern point of view, and perhaps some account of the history of past doctrines, and explanations of the similar topics. Such a reader will be disappointed in Mr. Ward's article on psychology. The article is a very puzzling one for a reviewer. To find fault with it, is simply to say that it is not the kind of an

article which he himself would have wished for or have written, and, on the other hand, shows a neglect for the very learned and bright treatment which the subject receives at the author's hands. On the other hand, he cannot refrain from expressing the very unsatisfactory impression which the reading of Mr. Ward's work leaves upon him. In analyzing this disappointment, one would lay the blame either on the fact that the reader's expectation was wrongly founded, or that Mr. Ward had chosen to write an article which did not have practical utility as its chief aim, or more probable, perhaps, than either of the above two, that the present condition of psychology is reflected in this unsatisfactory, rather scattered treatment. Perhaps, after all, this is the real appearance of a cross-section of the science at the present moment.

Beginning with the argument that the peculiarity of psychology rests, not in its subject-matter, but in its point of view, he proceeds to develop a theory of presentations which is fundamental to his whole treatment. Then, under seven or eight headings, he treats such subjects as perception, imagination, association, feeling, self-consciousness. But under each section the reader finds himself at once *in medias res*. No general outline of the topic is given, or of its connection with other subjects. The author is evidently perfectly at home in the literature of the topics; but only here and there, by way of illustration, are the results of recent experiments in this field brought in. The section on feeling is recommended as especially well treated.

He then develops the theory "that there is pleasure in proportion as a maximum of attention is effectively exercised, and pain in proportion as such effective attention is frustrated by distractions, shocks, or incomplete and faulty adaptations, or fails of exercise, owing to the narrowness of the field of consciousness, and the slowness and smallness of its changes."

In a general review of this volume of the encyclopaedia a writer referred to the article as the most abstruse article in the volume. This abstruseness seems to come from the fact that the author has given a series of minute dissections, but neglected to give the relation of the different parts which were under the knife. He has used the microscope without describing the naked-eye appearances.

THE replacement of a diseased eye by the healthy eye of an animal has now been done five times, with one success, says the *Medical record*. In the four cases the cornea sloughed; in two, however, firm vascular adhesions took place.

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